

Heart failure in questions and answers

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Is the use of combination therapy with furosemide and torasemide justified in patients with heart failure? Which diuretics can be combined to achieve a higher diuretic effect? Is this a reasonable option in patients with edema?

In the treatment of resistant edema, 2 loop diuretics may be used in combination. The recommendation on the combination treatment using different loop diuretics despite their synergic effect is a result of the observed differences in bioavailability of these drugs, a longer duration of effect of torasemide compared with furosemide, and additional aldosterone-lowering properties of torasemide.

In patients with high blood pressure and fluid retention, diuretics from different classes may also be combined, for example, a loop diuretic plus a thiazide diuretic plus an aldosterone antagonist. Such therapy uses different mechanisms to increase the diuretic effect.

In patients with renal failure with glomerular filtration rates of 35 ml/min/1.73 m² or less, the efficacy of thiazide diuretics and aldosterone antagonists is low, and these drugs are therefore not recommended.

REFERENCES

- 1 2013 ACCF/AHA guideline for the management of heart failure. a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Circulation*; 2013 ACCF/AHA Heart Failure Guideline. *Circulation*. 2013; 128: e240-e327.
- 2 [Torasemid: effects and properties]. <http://www.farmacjapraczynska.pl/2013/06/torasemid-dzialanie-wlasciwosci/>. Polish. Accessed October 18, 2016.
- 3 [2012 ESC guidelines for diagnosing and treatment of acute and chronic heart failure]. *Kardiologia Polska*. 2012; 70 (Suppl II): 101-176. Polish.
- 4 [Management of heart failure in 2015]. Guidelines of the College Family Physicians in Poland and Section of Heart Failure of Polish Cardiac Society. *Lek Rodz.* 2015 (Special Issue 1): 1-48. Polish.

Is immunization against influenza and pneumococcal infections recommended in patients with heart failure?

Patients with heart failure should be vaccinated to reduce incidence of influenza and pneumococcal disease and/or to alleviate the infections. Infection can dramatically worsen the course of heart failure and may lead to death and hospital admissions.

Choosing between a less and a more cardioselective β -blocker (carvedilol/nebivolol versus bisoprolol) in the treatment of heart failure: what to choose when?

In patients with heart failure with impaired contractile function, all β -blockers allowed by guidelines may be used. In addition to the drugs listed in the title, metoprolol may also be used. These drugs can be used even in patients with asthma or chronic obstructive pulmonary disease. In this group of patients, starting from low doses of a β -blocker and titration up to optimal or maximum tolerated doses is recommended. Reduced mortality and exacerbations of these chronic respiratory diseases were shown in patients treated with β -blockers.

However, β -blockers show some differences, including in their electrophysiological effects, which makes metoprolol and bisoprolol more effective than carvedilol and nebivolol in patients with arrhythmias.

REFERENCES

- 1 Banasiak W, Kuźniar T, Jankowska EA, Ponikowski P. [Diagnostic and therapeutic problems in patients with heart failure and comorbidities. Part 1: heart failure and chronic obstructive pulmonary disease]. *Med Prak.* 2013; 12: 30-43.
- 2 Rutten FH, Zithoff NP, Hak E, et al. Beta-blockers may reduce mortality and risk of exacerbations in patients with chronic obstructive pulmonary disease. *Arch Intern Med*. 2010; 170: 880-887.

Is it reasonable to use a low maintenance dose of a β -blocker (eg, carvedilol, 6.25 mg/d) in a patient with heart failure in whom the dose cannot be increased because of bradycardia or atrioventricular block? What should be the target dose?

Based on the results of clinical trials, so called optimal doses of β -blockers, associated with optimal effects on mortality and exacerbation rates, were defined. The doses are as follows: for metoprolol, 20–200 mg/d; for carvedilol, 50–100 mg/d; for nebivolol, 10 mg/d; and for bisoprolol, 10 mg/d.

In patients treated with suboptimal doses of β -blockers, beneficial effects were also seen but they were markedly lower compared with the optimal doses. Therefore, it is reasonable to use even low doses of β -blockers.

REFERENCES

- 1 Bristow MR, Gilbert EM, Abraham WT, et al. Carvedilol produces dose-related improvements in left ventricular function and survival in subjects with chronic heart failure. *Circulation*. 1996; 94: 2807-2816
- 2 [2012 ESC guidelines for diagnosing and treatment of acute and chronic heart failure]. *Kardiologia Pol.* 2012; 70 (Suppl II): 101-176. Polish.
- 3 [Management of heart failure in 2015]. Guidelines of the College Family Physicians in Poland and Section of Heart Failure of Polish Cardiac Society. *Lek Rodz*. 2015 (Special Issue 1): 1-48. Polish.

A patient with severe edema of the lower extremities, ascites, tachycardia, low blood pressure, and previously detected markedly reduced ejection fraction refuses hospitalization. Which drugs are the safest to start outpatient treatment?

The most important thing is patience and repeated offer of hospital admission. In 95% of cases, professional, calm, and clear argumentation results in the patient's consent to hospitalization. However, if the patient does not give such consent, I suggest obtaining (in a reassuring and clear manner) a written (by a patient or by his or her guardian) refusal to admission. If this is not possible, an annotation of refusal in the presence of a witness (eg, a nurse) is sufficient. Such situation is not included in the European Society of Cardiology (ESC) guidelines, but logically we have to reduce a number of hypotensive drugs in the treatment of heart failure. In such circumstances, I suggest starting treatment with:

- 1 a digitalis glycoside (an inotropic drug to improve myocardial contractility) combined with a loop diuretic and a low-dose aldosterone antagonist (eg, spironolactone, 25 mg/d, or eplerenone, 25 mg/d);
- 2 ivabradine (only in patients with sinus rhythm of 75 bpm or higher) combined with a loop diuretic and a low-dose aldosterone antagonist (eg, spironolactone, 25 mg/d, or eplerenone, 25 mg/d).

In patients with persistent heart rate of 75 bpm or higher despite the therapy with a digitalis glycoside or ivabradine in doses recommended by the guidelines, I suggest using a combination therapy with ivabradine and digoxin, and add a loop diuretic and a low-dose aldosterone antagonist.

In patients with contraindications to β -blockers, the ESC guidelines recommend the use of digoxin and ivabradine in the treatment of heart failure. Such patients require follow-up visits even once a week. When systolic blood pressure exceeds 100 mmHg (this effect is usually achieved after using at least 2 weeks of the treatment described above), adding a low-dose angiotensin-converting enzyme inhibitor under blood pressure monitoring should be considered.

In the case of a lack of therapeutic effect, I suggest a repeated offer of hospital admission.

What treatment should be offered to a female patient with heart failure (using metoprolol succinate, 50 mg/d, as monotherapy), blood pressure of 100/70 mmHg, and severe edema of the lower extremities? This question is in part similar to the previous question. Because of low blood pressure, we have to minimize the number of antihypertensive

drugs. Therefore, I suggest reducing the dose of metoprolol to 25 mg/d and start a loop diuretic. Furthermore, when the sinus rhythm is 75 bpm or higher, it is necessary to add ivabradine in a dose sufficient to achieve a heart rate of 50 to 65 bpm. Another alternative for the patient with persistent heart rate of 75 bpm or higher (sinus rhythm or atrial fibrillation) is addition of a digitalis glycoside, which has inotropic effects and will make it possible to treat hypertension.

REFERENCES

- 1 [2012 ESC guidelines for diagnosing and treatment of acute and chronic heart failure]. *Kardiologia Pol.* 2012; 70 (Suppl II): 101-176. Polish.

How to plan potassium supplementation (what formulation and dose should be used) in a patient treated with a diuretic with a tendency to cause hypokalemia?

Potassium chloride as an extended-release formulation (1 tablet contains 391 mg of potassium), 2 tablets per day is usually sufficient. In patients with persistent potassium levels of less than 4 mmol/l, I suggest adding an aldosterone antagonist (eg, spironolactone, 50 mg/d, or eplerenone, 50 mg/d). Reducing the levels of aldosterone additionally decreases renal potassium excretion. However, after approximately 1 week of such therapy, serum potassium levels should be measured.

REFERENCES

- 1 Trzaska E, Gumulka W, Makulska-Nowak HE. [The use of aldosterone antagonists in the cardiovascular diseases]. *Kardiologia Pol.* 2009; 67: 667-671. Polish.

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